

WHAT IS CLAIMED IS:

1. A multiprocessor system, comprising:

a processing sub-system including a plurality of processors and a processor memory system;

5 a network operable to couple the processing sub-system to an input/output (I/O) sub-system;

the I/O sub-system including a plurality of I/O interfaces each operable to couple a peripheral device to the multiprocessor system;

10 the I/O interfaces each including a local memory operable to store a copy of data from the processor memory for use by a corresponding peripheral device and to invalidate the copy at a first time event; and

15 a directory for the processor memory system, the directory operable to identify the data as owned upon providing the copy to the I/O sub-system and to identify the data as unowned at a second time event.

20 2. The multiprocessor system of Claim 1, wherein the first and second time event occur at the same time.

25 3. The multiprocessor system of Claim 1, wherein the first and second time event comprise expiration of a predefined period of time after an initiation event.

4. The multiprocessor system of Claim 1, wherein the network is a scalable network.

30 5. The multiprocessor system of Claim 4, wherein the scalable network comprises a plurality of routers.

6. The multiprocessor system of Claim 1, wherein the processor memory system comprises a plurality of discrete processor memories.

5           7. The multiprocessor system of Claim 6, wherein  
the discrete processor memories are each dedicated to a  
processor.

8. The multiprocessor system of Claim 1, wherein  
10 the copy of the data is provided to the I/O interface in  
a exclusive read-only state.

9. A method for managing data in an input/output (I/O) interface for a multiprocessor system, comprising:  
coupling a plurality of processors to a processor memory system;

5 coupling a plurality of I/O interfaces to the processor memory system;

coupling a peripheral device to each I/O interface;

storing a copy of data from the processor memory system in an I/O interface for use by a corresponding peripheral device;

10 invalidating the copy in the I/O interface at a first time event;

identifying the data as owned upon providing the copy to the I/O interface; and

15 automatically identifying the data as unowned at a second time event.

10. The method of Claim 9, wherein the first time event and second time event occur at a same time.

20 11. The method of Claim 9, wherein the first and second time event comprise expiration of a predefined period of time after an initiation event.

25 12. The method of Claim 11, wherein the initiation event comprises a time of initiation of a request for the copy of the data from the processor memory system.

30 13. The method of Claim 9, further comprising coupling the I/O interfaces to the processor memory system through a scalable network.

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17. The method of Claim 9, wherein the copy of the data is provided to the I/O interface in an exclusive read-only state.

18. A computer system, comprising:

a main system memory operable to store system data;

a remote memory operable to store copies of data  
from the main system memory for use by a remote device;  
and

a memory protocol operable to provide a copy of data  
to the remote memory from the main system memory, to  
automatically delete the copy from the remote memory  
after a period of time and to automatically update a  
status of the data at the main system memory upon  
expiration of the period of time without notification  
messaging between the main system memory and the remote  
memory.

19. The computer system of Claim 18, wherein the  
remote memory comprises a local cache of an input/output  
(I/O) interface for a peripheral device.

20. The computer system of Claim 18, wherein the  
copy of the data is provided to the remote memory in an  
exclusive read-only state.

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